

TANAKA et al  
Serial No. 09/820,819  
Amendment dated November 4, 2003  
Response to Office Action of May 6, 2003

**REMARKS**

Upon entry of the present amendment, claims 1-3, 5-10 and 12-22 are pending. By the present amendment, claims 1, 3, 6 and 12 have been amended for clarity to correct minor informalities, claim 4 has been canceled without prejudice or disclaimer as to the subject matter contained therein, and new claims 14-22 have been added. It is noted that the Office Action addresses claim 11 on several occasions. However, claim 11 was canceled in the amendment filed March 20, 2003. Accordingly, the rejections of claim 11 are not addressed herein. Favorable reconsideration of the application is respectfully requested.

Applicants appreciate the Examiner's indication that claim 12 is allowable. Claim 12 has been amended for clarity to correct a minor informality. Therefore, Claim 12 is still allowable, and no further comment will be made with respect thereto.

The rejection of claims 1-11 and 13 under 35 U.S.C. §112, second paragraph is respectfully traversed. Without acquiescing in the rejection, claims 1, 3 and 6 have been amended. Accordingly, the rejection is overcome, and reconsideration and withdrawal thereof are respectfully requested.

The rejection of claims 4-7 under 35 U.S.C. §112, first paragraph is respectfully traversed. Without acquiescing in the rejection, it is noted that claim 4 has been canceled. With respect to claims 5-7, it is respectfully submitted that ample support for the features recited therein appears in the specification. For example, the specification at page 5, lines 32-35, specifically recites that the other (31) of the two electrodes (31, 32)

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of the second electrochemical cell (3) and the other (61) of the two electrodes (61, 62) of the fourth electrochemical cell (6) are located to be exposed to either one of the first *and* second chamber (11, 12).

The rejection of claims 1 and 13 under 35 U.S.C. §102(e) over Hasei et al. (U.S. Patent No. 6,319,377, hereinafter "Hasei") is respectfully traversed. Without acquiescing in the rejection, claim 1 has been amended for clarity. Accordingly, the rejection will be discussed with respect to the claims as amended.

Hasei is directed to a nitrogen oxide sensor enabled to enhance the measurement concentration of a total of nitrogen oxides by oxidizing or reducing the nitrogen oxides on the surfaces of electrodes in addition to the control of an oxygen concentration by an oxygen pump.

The claimed invention, on the other hand, includes the feature of a pair of electrodes of the third electrochemical cell for detecting an electromotive force caused between a gas to be measured and a reference gas is disposed on the same surface of the same solid electrolyte plate. This results in a compound layered type of multiple sensing device that is able to accurately measure certain characteristics that are not measurable using the arrangement of Hasei. For example, the claimed arrangement is able to accurately measure a  $\lambda$ -characteristic of an automobile internal combustion engine.

In contrast, Hasei discloses an electrode 7 for detecting an oxygen concentration. However, this electrode is disposed to detect the oxygen concentration used for control of a drive voltage to be applied to a pump 8. Thus, the electrode of Hasei at best may

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correspond to the fourth electrochemical cell of the claimed invention. Moreover, the electrode 7 of Hasei cannot be arranged to accurately measure the  $\lambda$ -characteristic of an automobile internal combustion engine. For example, the electrode 7 is disposed within the same gas chamber as that for a pumping electrode 3a. Thus, the actions of the pumping electrode 3a will lead to fluctuations in the oxygen concentration in the chamber 18. Thus, it can be seen that the electrode 7 is not placed to measure the  $\lambda$ -characteristic with any precision. Thus, not only is the structure disclosed by Hasei distinctively different from that of the claimed invention, the function is as well.

It is axiomatic that in order for a reference to anticipate a claim, the reference must disclose, teach or suggest each and every feature of the claim. As set forth above, Hasei fails to disclose, teach or suggest each and every feature of the claimed invention. Accordingly, Hasei fails to anticipate the claimed invention. Therefore, reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claims 1 and 13 under 35 U.S.C. §103(a) over Hasei is respectfully traversed. It is respectfully submitted that no objective teaching in the prior art has been provided to overcome the fundamental deficiencies of Hasei noted above. Accordingly, Hasei cannot render the claimed invention obvious. Therefore, reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claim 10 under 35 U.S.C. §103(a) over Hasei in view of Mase et al. (U.S. Patent No. 4,755,274, hereinafter "Mase") is respectfully traversed.

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It is respectfully submitted that Mase fails to overcome the fundamental deficiencies noted above with respect to Hasei. Therefore, even if, *arguendo*, the combination of Hasei and Mase were proper, the combination nevertheless fails to render the claimed invention obvious. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

The provisional rejection of claim 13 under the judicially created doctrine of obviousness-type double-patenting over the claims of co-pending application serial no. 09/821,807 in view of Hasei is respectfully traversed. For at least the reasons set forth above, Hasei does not provide any structure for accurately measuring the  $\lambda$ -characteristic. Accordingly, the provisional combination suggested in the Office Action fails to render the claims of the instant application obvious. Therefore, reconsideration and withdrawal of the rejection are respectfully requested.

With respect to the Examiner's query regarding the proposed drawing correction, the diffusion member 120 is a thin diffusive resistance passage, like the diffusive passage 110, which was originally and is presently shown as being a non-cross-sectional hatching member. The member 120 is a passage, and believed to be clearly shown in the corrected drawings.

In view of the foregoing, it is respectfully submitted that the entire application is in condition for allowance. Favorable reconsideration of the application and prompt allowance of the claims are earnestly solicited.

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Should the Examiner deem that further issues require resolution prior to allowance, the Examiner is invited to contact the undersigned attorney of record at the telephone number set forth below.

Respectfully submitted,

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